



SEQUENCE LISTING

<110> MAOKA, Tetsuo
HATAYA, Tatsuji

<120> Full-length Genomic RNA of Papaya Leaf-Distortion Mosaic Virus

<130> 382.1036

<140> 10/076,839

<141> 2002-02-15

<150> JP 2001-040523

<151> 2001-02-16

<160> 4

<170> PatentIn Ver. 2.0

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<212> RNA

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ccc	aca	uug	aga	aug	cga	gga	aug	uca	ucu	uuu	gga	ucu	agu	aaU	aua	4587
Pro	Thr	Leu	Arg	Met	Arg	Gly	Met	Ser	Ser	Phe	Gly	Ser	Ser	Asn	Ile	
			1470			1475					1480					
ugu	aua	aug	acu	agu	gga	uuu	gcu	uuc	aaU	uac	uuu	gca	aaU	aaU	ccu	4635
Cys	Ile	Met	Thr	Ser	Gly	Phe	Ala	Phe	Asn	Tyr	Phe	Ala	Asn	Asn	Pro	
					1490				1495						1500	
cua	aaa	uua	agu	gau	uuu	gaa	uuu	gug	aua	aua	gau	gag	ugu	cac	guc	4683
Leu	Lys	Leu	Ser	Asp	Phe	Glu	Phe	Val	Ile	Ile	Asp	Glu	Cys	His	Val	
				1505					1510					1515		
cua	gau	agc	aac	gcu	aug	gca	uuc	gug	ugu	cuu	cuc	aaa	gaa	cac	aac	4731
Leu	Asp	Ser	Asn	Ala	Met	Ala	Phe	Val	Cys	Leu	Leu	Lys	Glu	His	Asn	
			1520					1525					1530			
uau	gau	ggc	aaa	cua	uug	aaa	gug	uca	gcc	aca	cca	cag	ggc	cgu	gaa	4779
Tyr	Asp	Gly	Lys	Leu	Leu	Lys	Val	Ser	Ala	Thr	Pro	Gln	Gly	Arg	Glu	
			1535				1540					1545				
ugu	gaa	uuc	cac	aca	cag	cau	cca	guu	ucc	auu	cau	aua	gag	gaa	caa	4827
Cys	Glu	Phe	His	Thr	Gln	His	Pro	Val	Ser	Ile	His	Ile	Glu	Glu	Gln	
			1550			1555					1560					
cuu	agu	uuc	caa	gcu	uuu	ugu	gaa	gcu	caa	gga	acu	ggg	ucu	gca	cga	4875
Leu	Ser	Phe	Gln	Ala	Phe	Cys	Glu	Ala	Gln	Gly	Thr	Gly	Ser	Ala	Arg	
					1570					1575					1580	
gau	gua	auc	aaU	aag	gga	gac	aac	auu	uua	gug	uau	guu	gcu	agu	uac	4923
Asp	Val	Ile	Asn	Lys	Gly	Asp	Asn	Ile	Leu	Val	Tyr	Val	Ala	Ser	Tyr	
				1585				1590					1595			
aaU	gag	guu	gau	cag	cuc	uca	aaa	aug	cuc	gga	gau	aaa	ggc	uau	uua	4971
Asn	Glu	Val	Asp	Gln	Leu	Ser	Lys	Met	Leu	Gly	Asp	Lys	Gly	Tyr	Leu	
			1600					1605					1610			
gug	acu	aaa	guc	gau	ggg	cgu	acc	aug	aaa	auu	ggg	ucg	acc	gac	aua	5019

Val	Thr	Lys	Val	Asp	Gly	Arg	Thr	Met	Lys	Ile	Gly	Ser	Thr	Asp	Ile		
		1615					1620					1625					
guu	acu	aaa	ggg	agu	agc	cag	aag	aaa	cau	uuc	auu	gua	gca	acc	aac	5067	
Val	Thr	Lys	Gly	Ser	Ser	Gln	Lys	Lys	His	Phe	Ile	Val	Ala	Thr	Asn		
		1630				1635					1640						
aua	auc	gag	aaU	gga	guc	acu	cua	gau	gua	gau	guu	guu	gug	gac	uuu	5115	
Ile	Ile	Glu	Asn	Gly	Val	Thr	Leu	Asp	Val	Asp	Val	Val	Val	Asp	Phe		
		1645			1650					1655					1660		
ggU	uug	aaa	guc	acu	gcu	gaa	auu	gau	uac	gac	aac	cgg	ugc	guu	aaU	5163	
Gly	Leu	Lys	Val	Thr	Ala	Glu	Ile	Asp	Tyr	Asp	Asn	Arg	Cys	Val	Asn		
				1665					1670					1675			
uac	aca	aag	acc	agc	auu	uca	uac	gga	gaa	cgc	aua	caa	aga	uug	ggc	5211	
Tyr	Thr	Lys	Thr	Ser	Ile	Ser	Tyr	Gly	Glu	Arg	Ile	Gln	Arg	Leu	Gly		
			1680					1685					1690				
agg	guu	ggU	aga	cac	aag	aaa	ggg	cau	gca	aug	aga	auu	gga	acu	aca	5259	
Arg	Val	Gly	Arg	His	Lys	Lys	Gly	His	Ala	Met	Arg	Ile	Gly	Thr	Thr		
		1695					1700					1705					
auu	aaa	gga	uug	auu	gag	auu	ccu	agu	cuu	gug	gcg	aca	cag	gcu	gca	5307	
Ile	Lys	Gly	Leu	Ile	Glu	Ile	Pro	Ser	Leu	Val	Ala	Thr	Gln	Ala	Ala		
		1710				1715					1720						
uuu	caa	ugc	uuc	aca	uau	gga	uug	ccu	gua	aug	aca	caa	gga	guu	uca	5355	
Phe	Gln	Cys	Phe	Thr	Tyr	Gly	Leu	Pro	Val	Met	Thr	Gln	Gly	Val	Ser		
		1725			1730					1735					1740		
guu	aac	agu	uua	uca	aaU	ugc	aca	guc	cga	cag	gcc	aga	guu	aug	ucu	5403	
Val	Asn	Ser	Leu	Ser	Asn	Cys	Thr	Val	Arg	Gln	Ala	Arg	Val	Met	Ser		
				1745				1750						1755			
cgu	uuu	gag	uug	ccg	ccu	uac	uuu	aug	gcu	uca	cuu	gua	uau	cau	gau	5451	
Arg	Phe	Glu	Leu	Pro	Pro	Tyr	Phe	Met	Ala	Ser	Leu	Val	Tyr	His	Asp		
			1760					1765					1770				
ggc	agc	aug	cac	ccu	gaa	auu	cac	aag	cau	uua	auu	ccu	uac	aag	uua	5499	
Gly	Ser	Met	His	Pro	Glu	Ile	His	Lys	His	Leu	Ile	Pro	Tyr	Lys	Leu		
		1775					1780					1785					
gau	gaa	ucu	gaa	auu	caa	cuu	agu	gcc	aug	gcu	uuu	aac	uuu	acc	gua	5547	
Asp	Glu	Ser	Glu	Ile	Gln	Leu	Ser	Ala	Met	Ala	Phe	Asn	Phe	Thr	Val		
		1790				1795					1800						
aca	ucu	auu	ugg	cua	gau	ugu	aaa	uuu	uau	gac	agu	aua	gga	auc	cau	5595	
Thr	Ser	Ile	Trp	Leu	Asp	Cys	Lys	Phe	Tyr	Asp	Ser	Ile	Gly	Ile	His		
		1805			1810					1815					1820		
cuu	gau	uua	ccg	cgc	gaa	gca	aaa	auu	cca	uuc	cau	ugu	aga	gaa	uuc	5643	
Leu	Asp	Leu	Pro	Arg	Glu	Ala	Lys	Ile	Pro	Phe	His	Cys	Arg	Glu	Phe		
				1825					1830					1835			
cca	gau	aug	aaa	uac	cga	cac	uug	ugg	gaa	gau	auu	cuc	aaa	auc	aag	5691	
Pro	Asp	Met	Lys	Tyr	Arg	His	Leu	Trp	Glu	Asp	Ile	Leu	Lys	Ile	Lys		
			1840				1845					1850					
agc	aua	aaU	ugu	uuu	ggU	aga	aug	agu	guu	guu	agc	gca	aca	aaa	gua	5739	
Ser	Ile	Asn	Cys	Phe	Gly	Arg	Met	Ser	Val	Val	Ser	Ala	Thr	Lys	Val		
		1855					1860					1865					
gca	uau	aca	cuu	aaa	aca	gac	auu	cau	uca	auu	gga	aaa	acu	cuc	gga	5787	

Ala	Tyr	Thr	Leu	Lys	Thr	Asp	Ile	His	Ser	Ile	Gly	Lys	Thr	Leu	Gly	
1870						1875					1880					
uau	auu	gac	gcc	cuc	uug	caa	gaa	gaa	uau	aga	aaa	cag	cau	cau	uuu	5835
Tyr	Ile	Asp	Ala	Leu	Leu	Gln	Glu	Glu	Tyr	Arg	Lys	Gln	His	His	Phe	
1885					1890					1895					1900	
aaa	gca	aug	aca	agu	aac	gca	ugu	agu	ggg	aac	acu	uuu	uca	aug	cua	5883
Lys	Ala	Met	Thr	Ser	Asn	Ala	Cys	Ser	Gly	Asn	Thr	Phe	Ser	Met	Leu	
				1905					1910					1915		
agc	aua	gca	aaU	gca	aua	cgg	aac	cac	uau	gcu	aag	gac	uac	acu	gcu	5931
Ser	Ile	Ala	Asn	Ala	Ile	Arg	Asn	His	Tyr	Ala	Lys	Asp	Tyr	Thr	Ala	
			1920					1925					1930			
ggc	aaU	auu	cag	aaa	uug	cag	gca	gca	aag	aaU	caa	aua	cug	gaa	uuc	5979
Gly	Asn	Ile	Gln	Lys	Leu	Gln	Ala	Ala	Lys	Asn	Gln	Ile	Leu	Glu	Phe	
		1935					1940					1945				
guc	aaU	uua	aaU	cuu	gau	ccu	ucg	gcg	aaa	ugc	gga	uuc	caa	gag	uuc	6027
Val	Asn	Leu	Asn	Leu	Asp	Pro	Ser	Ala	Lys	Cys	Gly	Phe	Gln	Glu	Phe	
	1950					1955					1960					
gga	gcu	uua	gaa	cua	guu	acc	cau	cag	agc	agg	caa	gaa	auu	uca	aaa	6075
Gly	Ala	Leu	Glu	Leu	Val	Thr	His	Gln	Ser	Arg	Gln	Glu	Ile	Ser	Lys	
1965					1970					1975					1980	
uuu	cua	aaU	cug	aga	ggu	aag	ugg	aaU	aag	uca	cua	auu	aca	cgu	gau	6123
Phe	Leu	Asn	Leu	Arg	Gly	Lys	Trp	Asn	Lys	Ser	Leu	Ile	Thr	Arg	Asp	
				1985					1990					1995		
auc	uua	guu	uug	uua	ggu	guc	acu	auu	ggu	ggu	uuc	ugg	aug	aua	ugg	6171
Ile	Leu	Val	Leu	Leu	Gly	Val	Thr	Ile	Gly	Gly	Phe	Trp	Met	Ile	Trp	
			2000					2005				2010				
gau	aag	uuc	aaa	uca	aac	auu	gaa	gaa	guu	cau	cau	gaa	gga	aag	agg	6219
Asp	Lys	Phe	Lys	Ser	Asn	Ile	Glu	Glu	Val	His	His	Glu	Gly	Lys	Arg	
		2015					2020					2025				
aag	acu	caa	aag	cuu	aaa	uuu	cgg	gau	gcu	cgc	gau	aag	aaa	aug	ggu	6267
Lys	Thr	Gln	Lys	Leu	Lys	Phe	Arg	Asp	Ala	Arg	Asp	Lys	Lys	Met	Gly	
	2030					2035					2040					
cga	gaa	gua	uau	gga	gac	gac	ggu	acu	auu	gaa	cau	uac	uuu	gga	ucg	6315
Arg	Glu	Val	Tyr	Gly	Asp	Asp	Gly	Thr	Ile	Glu	His	Tyr	Phe	Gly	Ser	
2045				2050						2055					2060	
gca	uac	guc	aag	aga	ggu	gca	guu	aag	ggc	cag	aag	aga	gga	aug	ggc	6363
Ala	Tyr	Val	Lys	Arg	Gly	Ala	Val	Lys	Gly	Gln	Lys	Arg	Gly	Met	Gly	
				2065					2070					2075		
gaa	aaa	uca	aga	cgu	uuc	guu	agu	aug	uau	gga	guu	aaU	uua	gaa	gau	6411
Glu	Lys	Ser	Arg	Arg	Phe	Val	Ser	Met	Tyr	Gly	Val	Asn	Leu	Glu	Asp	
			2080					2085					2090			
uuu	gcu	uuu	auu	aga	uac	aua	gau	ccc	aua	acu	gga	gca	acg	cgu	gau	6459
Phe	Ala	Phe	Ile	Arg	Tyr	Ile	Asp	Pro	Ile	Thr	Gly	Ala	Thr	Arg	Asp	
		2095					2100					2105				
gag	agu	ccu	uug	aca	gau	gug	gaa	uua	gug	caa	gcu	cau	uuc	gga	gaa	6507
Glu	Ser	Pro	Leu	Thr	Asp	Val	Glu	Leu	Val	Gln	Ala	His	Phe	Gly	Glu	
	2110					2115					2120					
auc	aga	gac	aaa	aug	cua	gac	gag	ggc	cuc	auc	gau	agg	caa	cac	auc	6555

Ile Arg Asp Lys Met Leu Asp Glu Gly Leu Ile Asp Arg Gln His Ile	
2125 2130 2135 2140	
uua aaU aaa cca ggu uug aca gca uac uua guu aag gac ggg guu aag	6603
Leu Asn Lys Pro Gly Leu Thr Ala Tyr Leu Val Lys Asp Gly Val Lys	
2145 2150 2155	
ucc auc aug aaa gua gau uug caa cca cac aaU ccu cua cuc aua ugc	6651
Ser Ile Met Lys Val Asp Leu Gln Pro His Asn Pro Leu Leu Ile Cys	
2160 2165 2170	
aaa aac aaa gcg aca aua gca ggg uuu ccu gag aag gag uuu guu uug	6699
Lys Asn Lys Ala Thr Ile Ala Gly Phe Pro Glu Lys Glu Phe Val Leu	
2175 2180 2185	
cga caa acg gac aaa gca uau gaa gua agu aga gag gaa cua cca gaa	6747
Arg Gln Thr Asp Lys Ala Tyr Glu Val Ser Arg Glu Glu Leu Pro Glu	
2190 2195 2200	
cgg aaU gaa gac guu ucu uuu gaa gga gcc uca agu gug aag gga uug	6795
Arg Asn Glu Asp Val Ser Phe Glu Gly Ala Ser Ser Val Lys Gly Leu	
2205 2210 2215 2220	
cgc gau uac aaU ggu gua gcc agc gcU auu ugc caa cuc aca aac aac	6843
Arg Asp Tyr Asn Gly Val Ala Ser Ala Ile Cys Gln Leu Thr Asn Asn	
2225 2230 2235	
uca aaU ggu cgg ucc acc aca acu uau ggg guu ggc uuu ggc uca uac	6891
Ser Asn Gly Arg Ser Thr Thr Tyr Gly Val Gly Phe Gly Ser Tyr	
2240 2245 2250	
auc aua guu aaU agg cac uug uuu aaa gaa aaU aaU ggg aaU uua uug	6939
Ile Ile Val Asn Arg His Leu Phe Lys Glu Asn Asn Gly Asn Leu Leu	
2255 2260 2265	
auc aaa ucg acg cau gga aaU uuc aaU auc agg aac ucc aag caa auu	6987
Ile Lys Ser Thr His Gly Asn Phe Asn Ile Arg Asn Ser Lys Gln Ile	
2270 2275 2280	
aaa guc guc gga gug gag gau agg gau auu gcc auu cuu caa aug ccu	7035
Lys Val Val Gly Val Glu Asp Arg Asp Ile Ala Ile Leu Gln Met Pro	
2285 2290 2295 2300	
aaa gac uuc cca ccc uuu gca cag agg uua cga uuu aga aaU cca aua	7083
Lys Asp Phe Pro Pro Phe Ala Gln Arg Leu Arg Phe Arg Asn Pro Ile	
2305 2310 2315	
gug ggu gaa uca auu ugu cuu guu gga aaU acg uuc caa gaa aag uac	7131
Val Gly Glu Ser Ile Cys Leu Val Gly Asn Thr Phe Gln Glu Lys Tyr	
2320 2325 2330	
aaU gca agc auc guu ucu gag aca agc aaU aca uuc cca cga guu gaa	7179
Asn Ala Ser Ile Val Ser Glu Thr Ser Lys Thr Phe Pro Arg Val Glu	
2335 2340 2345	
ggu agu uuu ugg aaa cau ugg auu aaU aca acg gaa gga cau ugu gga	7227
Gly Ser Phe Trp Lys His Trp Ile Asn Thr Thr Glu Gly His Cys Gly	
2350 2355 2360	
uug ccu uua guu agu guc acu gau gga uuu auu gua gga aua cau agu	7275
Leu Pro Leu Val Ser Val Thr Asp Gly Phe Ile Val Gly Ile His Ser	
2365 2370 2375 2380	
uua aug agu cau aag uac gau cau aaU uau uuc ucg aac uuu gac gac	7323

Leu Met Ser His	Lys Tyr Asp His Asn Tyr Phe Ser Asn Phe Asp Asp	2385	2390	2395	
gcg uuu gaa ggc gau uau auu aac aag uug aag gaa cug aaa ugg gag	Ala Phe Glu Gly Asp Tyr Ile Asn Lys Leu Lys Glu Leu Lys Trp Glu	2400	2405	2410	7371
cag aaU ugg acu uac aac guu aaU acu guu agu ugg ggc aac aug aaa	Gln Asn Trp Thr Tyr Asn Val Asn Thr Val Ser Trp Gly Asn Met Lys	2415	2420	2425	7419
cuu cag gau agu gcu cca ugc aaa gaa uuc aaa aca acu aag uug auu	Leu Gln Asp Ser Ala Pro Cys Lys Glu Phe Lys Thr Thr Lys Leu Ile	2430	2435	2440	7467
agc gac uua ugc acg gaa ccu gug ugc gcu cag agu agc aaU caa guu	Ser Asp Leu Cys Thr Glu Pro Val Cys Ala Gln Ser Ser Asn Gln Val	2445	2450	2455	7515
aga ugg uua uau aaU cag cuu gaa gga aaU uug aaa gcg guu gca acu	Arg Trp Leu Tyr Asn Gln Leu Glu Gly Asn Leu Lys Ala Val Ala Thr	2465	2470	2475	7563
auu ccc aaU aac uuU guu aca aag cac auu gug aaa gga cga ugu aaa	Ile Pro Asn Asn Phe Val Thr Lys His Ile Val Lys Gly Arg Cys Lys	2480	2485	2490	7611
uug uuU gaa uug uau cug caa acu cgU agu gaa gcg aaU gag uuc uuU	Leu Phe Glu Leu Tyr Leu Gln Thr Arg Ser Glu Ala Asn Glu Phe Phe	2495	2500	2505	7659
aaa cca cug aug ggu uuC uau ggg aag agc ggu cuC aac aag gaa gca	Lys Pro Leu Met Gly Phe Tyr Gly Lys Ser Gly Leu Asn Lys Glu Ala	2510	2515	2520	7707
uac auu aag gac cua uuU aaa uac uca uca gaa auu cca auu ggg gag	Tyr Ile Lys Asp Leu Phe Lys Tyr Ser Ser Glu Ile Pro Ile Gly Glu	2525	2530	2535	7755
guc gac acu gag aga uuU gaa gau gca guu ggg caa guc auc gaa auu	Val Asp Thr Glu Arg Phe Glu Asp Ala Val Gly Gln Val Ile Glu Ile	2545	2550	2555	7803
aug aug caa ugg aac uuU agg gaa ugc aag uau auc acc gau ugu gac	Met Met Gln Trp Asn Phe Arg Glu Cys Lys Tyr Ile Thr Asp Cys Asp	2560	2565	2570	7851
cag auc uuU gaa uca uug aac aug aaa gcg gca guc ggu gcg uug uac	Gln Ile Phe Glu Ser Leu Asn Met Lys Ala Ala Val Gly Ala Leu Tyr	2575	2580	2585	7899
agu ggu aag aaa aag gcg uac uuC gaa aaU ucc aca uuU gau gau cga	Ser Gly Lys Lys Lys Ala Tyr Phe Glu Asn Ser Thr Phe Asp Asp Arg	2590	2595	2600	7947
aaU cau uug cua cag cuu agu ugu cuC cga uua uuC aag ggu gau uug	Asn His Leu Leu Gln Leu Ser Cys Leu Arg Leu Phe Lys Gly Asp Leu	2605	2610	2615	7995
gga auu ugg aaU gga agu cuu aaa gcU gaa uua aga cca auu gaa aag	Gly Ile Trp Asn Gly Ser Leu Lys Ala Glu Leu Arg Pro Ile Glu Lys	2625	2630	2635	8043
guu gaa gca aac aaa acg cga aca uuC aca gca gcU cca auu gaa acu					8091

Val	Glu	Ala	Asn	Lys	Thr	Arg	Thr	Phe	Thr	Ala	Ala	Pro	Ile	Glu	Thr		
			2640					2645					2650				
uua	cuu	ggc	gga	aag	guu	ugc	guc	gau	gau	uuc	aac	aac	caa	uuu	uau	8139	
Leu	Leu	Gly	Gly	Lys	Val	Cys	Val	Asp	Asp	Phe	Asn	Asn	Gln	Phe	Tyr		
		2655					2660				2665						
gau	cuu	aaU	aug	aaa	ugc	cca	ugg	aca	guc	ggg	aug	acu	aag	uuu	uau	8187	
Asp	Leu	Asn	Met	Lys	Cys	Pro	Trp	Thr	Val	Gly	Met	Thr	Lys	Phe	Tyr		
		2670				2675					2680						
ugc	gga	ugg	aaU	gau	cuu	cua	ggU	aaa	cuu	ccu	gau	ggU	ugg	aua	uac	8235	
Cys	Gly	Trp	Asn	Asp	Leu	Leu	Gly	Lys	Leu	Pro	Asp	Gly	Trp	Ile	Tyr		
		2685			2690					2695					2700		
cgc	gau	gcu	gac	gga	uca	cga	uuu	gac	agu	ucu	cuu	aca	cca	uac	uug	8283	
Arg	Asp	Ala	Asp	Gly	Ser	Arg	Phe	Asp	Ser	Ser	Leu	Thr	Pro	Tyr	Leu		
				2705					2710					2715			
cug	aaU	gca	gug	cuc	ggg	auu	agg	gag	uuu	uuc	aug	gaa	gau	ugg	gac	8331	
Leu	Asn	Ala	Val	Leu	Gly	Ile	Arg	Glu	Phe	Phe	Met	Glu	Asp	Trp	Asp		
			2720					2725					2730				
aua	ggc	gug	cag	aug	cuu	cga	aaU	uug	cac	acu	gaa	aua	auu	uac	acc	8379	
Ile	Gly	Val	Gln	Met	Leu	Arg	Asn	Leu	His	Thr	Glu	Ile	Ile	Tyr	Thr		
		2735					2740					2745					
ccc	auu	gca	aca	ccu	gau	gga	aca	guc	guc	aaa	aag	uuu	cga	gga	aaU	8427	
Pro	Ile	Ala	Thr	Pro	Asp	Gly	Thr	Val	Val	Lys	Lys	Phe	Arg	Gly	Asn		
		2750				2755					2760						
aaU	agu	ggU	caa	ccg	uca	aca	guc	gua	gau	aac	aca	uug	aug	guc	ugu	8475	
Asn	Ser	Gly	Gln	Pro	Ser	Thr	Val	Val	Asp	Asn	Thr	Leu	Met	Val	Cys		
		2765			2770					2775					2780		
auu	ugu	gug	cag	uau	agu	uua	auu	aug	aaU	agu	gua	aag	uuu	gag	aaU	8523	
Ile	Cys	Val	Gln	Tyr	Ser	Leu	Ile	Met	Asn	Ser	Val	Lys	Phe	Glu	Asn		
				2785					2790					2795			
cag	gau	gau	guc	ugc	agg	uau	uuc	guu	aac	ggU	gau	gau	uua	uug	cuu	8571	
Gln	Asp	Asp	Val	Cys	Arg	Tyr	Phe	Val	Asn	Gly	Asp	Asp	Leu	Leu	Leu		
			2800					2805					2810				
gca	auc	aaU	cca	aaa	uuu	aua	cac	auc	cua	gau	ucu	uuu	aaa	guu	cau	8619	
Ala	Ile	Asn	Pro	Lys	Phe	Ile	His	Ile	Leu	Asp	Ser	Phe	Lys	Val	His		
		2815					2820					2825					
uuu	gcu	aaU	uua	ggU	uua	gac	uac	gau	uuc	ucu	cau	cga	acg	aaa	gac	8667	
Phe	Ala	Asn	Leu	Gly	Leu	Asp	Tyr	Asp	Phe	Ser	His	Arg	Thr	Lys	Asp		
		2830				2835					2840						
aaa	gga	gaa	cuu	ugg	uuu	aug	ucu	cac	aaa	gga	guu	aaa	uua	aaU	gac	8715	
Lys	Gly	Glu	Leu	Trp	Phe	Met	Ser	His	Lys	Gly	Val	Lys	Leu	Asn	Asp		
					2850					2855					2860		
aug	uau	aaU	cca	aag	cug	gag	cca	gag	agg	guu	guc	uca	aua	cuu	gag	8763	
Met	Tyr	Ile	Pro	Lys	Leu	Glu	Pro	Glu	Arg	Val	Val	Ser	Ile	Leu	Glu		
				2865					2870					2875			
ugg	gau	aga	agu	gua	aaa	cca	gaa	cac	aga	uua	gaa	gcg	auu	ugc	gcu	8811	
Trp	Asp	Arg	Ser	Val	Lys	Pro	Glu	His	Arg	Leu	Glu	Ala	Ile	Cys	Ala		
			2880					2885					2890				
ucg	aug	auu	gaa	gca	ugg	ggU	uac	ccu	agg	uua	auc	cac	gaa	auu	cga	8859	

Ser	Met	Ile	Glu	Ala	Trp	Gly	Tyr	Pro	Arg	Leu	Ile	His	Glu	Ile	Arg	
		2895					2900					2905				
aaa	uuu	uau	gcu	ugg	guu	cug	gaa	caa	gca	cca	uac	aaU	cau	cuc	gca	8907
Lys	Phe	Tyr	Ala	Trp	Val	Leu	Glu	Gln	Ala	Pro	Tyr	Asn	His	Leu	Ala	
		2910				2915					2920					
ucu	gag	gga	aag	gca	cca	uac	auu	ucg	gaa	aca	gcg	cuc	aaa	aga	cuu	8955
Ser	Glu	Gly	Lys	Ala	Pro	Tyr	Ile	Ser	Glu	Thr	Ala	Leu	Lys	Arg	Leu	
		2925			2930					2935					2940	
uac	aca	ugc	gaa	gaa	gga	agu	gcu	gau	gaa	auc	aug	uca	uac	uua	gag	9003
Tyr	Thr	Cys	Glu	Glu	Gly	Ser	Ala	Asp	Glu	Ile	Met	Ser	Tyr	Leu	Glu	
				2945					2950					2955		
aug	ugu	gca	agu	gau	uug	aac	gag	gau	gag	uac	uuu	gau	gau	gaa	gau	9051
Met	Cys	Ala	Ser	Asp	Leu	Asn	Glu	Asp	Glu	Tyr	Phe	Asp	Asp	Glu	Asp	
			2960					2965					2970			
guu	ucu	cac	cag	ucc	gcu	cuu	gau	gcu	ggc	aaa	ccc	aca	gca	gaa	aac	9099
Val	Ser	His	Gln	Ser	Ala	Leu	Asp	Ala	Gly	Lys	Pro	Thr	Ala	Glu	Asn	
		2975					2980					2985				
aag	aaa	gac	gau	gaa	gag	aga	aag	aaU	aaa	gaa	gaa	aag	cag	gaa	aaU	9147
Lys	Lys	Asp	Asp	Glu	Glu	Arg	Lys	Asn	Lys	Glu	Glu	Lys	Gln	Glu	Asn	
	2990					2995					3000					
aaa	aac	aaa	aaU	aaa	gaa	guc	gag	aag	aaa	cau	gag	aaa	acu	ucg	aaU	9195
Lys	Asn	Lys	Asn	Lys	Glu	Val	Glu	Lys	Lys	His	Glu	Lys	Thr	Ser	Asn	
	3005				3010					3015					3020	
agc	gca	ucu	ggU	gcu	auu	guu	uca	aac	aac	gaa	aaa	gac	aag	gau	guc	9243
Ser	Ala	Ser	Gly	Ala	Ile	Val	Ser	Asn	Asn	Glu	Lys	Asp	Lys	Asp	Val	
				3025					3030					3035		
gau	gua	gga	uca	agu	gga	ucu	uuc	auc	aua	cca	cga	auu	aaa	ucg	aua	9291
Asp	Val	Gly	Ser	Ser	Gly	Ser	Phe	Ile	Ile	Pro	Arg	Ile	Lys	Ser	Ile	
			3040					3045					3050			
ucc	aaU	aaa	cuc	aca	aug	cca	aaa	gug	aaa	ggg	aaa	gga	auu	uua	aaU	9339
Ser	Asn	Lys	Leu	Thr	Met	Pro	Lys	Val	Lys	Gly	Lys	Gly	Ile	Leu	Asn	
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uug	gag	uuc	cuu	uua	caa	uac	aca	cca	gau	caa	gug	gac	auu	uca	aaU	9387
Leu	Glu	Phe	Leu	Leu	Gln	Tyr	Thr	Pro	Asp	Gln	Val	Asp	Ile	Ser	Asn	
	3070					3075					3080					
acc	agg	gca	agu	auu	uca	cag	uuu	aaU	aca	ugg	uac	aac	gcu	gug	aag	9435
Thr	Arg	Ala	Ser	Ile	Ser	Gln	Phe	Asn	Thr	Trp	Tyr	Asn	Ala	Val	Lys	
	3085				3090					3095					3100	
gaa	ucc	uau	ggU	gug	ucu	gau	gaa	gaa	aug	gga	aua	auu	uug	aaU	gga	9483
Glu	Ser	Tyr	Gly	Val	Ser	Asp	Glu	Glu	Met	Gly	Ile	Ile	Leu	Asn	Gly	
				3105					3110					3115		
uua	aug	guu	ugg	ugu	auu	gaa	aaU	gga	aca	ucu	cca	aac	auu	aaU	ggc	9531
Leu	Met	Val	Trp	Cys	Ile	Glu	Asn	Gly	Thr	Ser	Pro	Asn	Ile	Asn	Gly	
			3120					3125					3130			
aug	ugg	uuu	aug	aug	caa	ggg	gaa	gaa	caa	auc	gaa	uac	ccc	cuu	caa	9579
Met	Trp	Phe	Met	Met	Gln	Gly	Glu	Glu	Gln	Ile	Glu	Tyr	Pro	Leu	Gln	
		3135					3140					3145				
cca	aua	gug	gaa	aac	gca	aaa	ccc	acu	uug	cgu	cag	auu	aug	gcu	cac	9627

Pro Ile Val Glu Asn Ala Lys Pro Thr Leu Arg Gln Ile Met Ala His
 3150 3155 3160
 uuu agc aaU guu gcu gaa gca uac auc gaa aag aga aaU uau gag aag 9675
 Phe Ser Asn Val Ala Glu Ala Tyr Ile Glu Lys Arg Asn Tyr Glu Lys 3180
 3165 3170 3175
 cca uau aug ccg agg uac ggu auu caa cgg aac cuc acc gac aug agu 9723
 Pro Tyr Met Pro Arg Tyr Gly Ile Gln Arg Asn Leu Thr Asp Met Ser 3195
 3185 3190
 uug gcg cga uau gcu uuU gau uuc uau gaa aug aca uca agg acg cca 9771
 Leu Ala Arg Tyr Ala Phe Asp Phe Tyr Glu Met Thr Ser Arg Thr Pro 3210
 3200 3205
 gcu cgg gcc ccg gaa gcc cac auc cag aug aaa gcu gca gca uug cga 9819
 Ala Arg Ala Arg Glu Ala His Ile Gln Met Lys Ala Ala Ala Leu Arg 3225
 3215 3220
 gau gcg aaU aaU aag aug uuU gga cug gau gga aaa guc gga aaU gcg 9867
 Asp Ala Asn Asn Lys Met Phe Gly Leu Asp Gly Lys Val Gly Asn Ala 3240
 3230 3235
 acu gag aac acg gag cgc cac acc gca gac gau guu aac cau aac acu 9915
 Thr Glu Asn Thr Glu Arg His Thr Ala Asp Asp Val Asn His Asn Thr 3260
 3245 3250 3255
 cau gca uuc acc ggc guu cga uau uau uagauuuua ccuaagcaua 9962
 His Ala Phe Thr Gly Val Arg Tyr Tyr 3265
 guuuuaucaua guaucuuuuu aaucgcauuu gcuuuacuuu cuagcacgcg uuagugaggu 10022
 uuuaaccuccu auuaucuaug ugucagugag gguagcccuc gugugaucuc uuagaaagua 10082
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 aagcaaggag ggn 10155

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 <211> 3269
 <212> PRT
 <213> Papaya Leaf-Distortion Mosaic Virus

<400> 2
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 Glu Gln Ile Glu Cys Val Arg Leu Val Pro Gly Thr Arg Val Glu Glu
 20 25 30
 Val Lys Thr Ile Lys Lys Val Leu Lys Thr His Tyr Gln Glu Ile Thr
 35 40 45
 Leu Gly Cys Thr Asp Arg Cys Ala Gly Leu Ser Ala Tyr Thr Lys Thr
 50 55 60
 Ser Leu Lys Arg Ala Ile Lys Glu Lys Asp Leu Thr Ala Ser Gly Ser
 65 70 75 80
 Cys Phe His Cys Gly Leu Arg Ala Gln Ile Gly Glu Gly Arg Lys Arg
 85 90 95

Val Glu Leu Ala Pro Ile Ser Val Met Glu Asp Val Glu Thr Val Glu
100 105 110
Gln Val Leu Val Pro Cys Met Val Glu Glu Lys Tyr Tyr Lys Glu Val
115 120 125
Ser Asn Phe Gln Lys Ala Thr Leu Ile Asp Lys Pro Lys Leu Thr Ile
130 135 140
Ala Pro Val Leu Met Ala Gln Pro Ala Gln Val Pro Arg Pro Ala Val
145 150 155 160
Phe Asn Glu Ile Arg Lys Val His Glu Glu Met Lys Ser Gln Thr Ser
165 170 175
Glu Asn Lys Val Leu Glu Glu Glu Thr Gln Cys Ala Ser Asp Ala Ala
180 185 190
Leu His His Leu Asp Asp Val His Ala Cys Arg Ala Arg Ala Gln Val
195 200 205
Gly Ile Glu Arg Ile Leu Ala Arg His Ala Arg His Arg Ile Glu Ala
210 215 220
Arg Gln Gln Val Glu Glu Glu Gln Ser Glu Ala Leu Ala Ala Phe Glu
225 230 235 240
Ser Phe Phe Asn Gln Thr His Arg Glu Asp Arg Tyr Glu Gly Lys Val
245 250 255
Leu Thr Ile Arg Asn Gly Ile Thr Gly Trp Phe Glu Pro Asn Arg Asn
260 265 270
Asp Ile Lys Asn Ala Ala Arg Arg Arg Lys Arg Ala Asn Lys Lys Ile
275 280 285
Pro Phe Val Ala Arg Glu Asn Asp Val Ala Arg Ile Glu Thr His Glu
290 295 300
Pro Asn Val Lys Glu Glu Thr Lys Asp Val Glu Glu Ala Thr Asp Thr
305 310 315 320
Tyr Thr Phe Lys Lys Gln Arg Asn Asp Lys Lys Arg Val Leu Lys Glu
325 330 335
Asn Val Ser Leu Ser Met Ala Arg Ile Asn Glu Leu Val Arg Cys Val
340 345 350
Thr Lys Leu Cys Arg Lys Asp Ser Lys Glu Leu Glu Phe Ile Gly Lys
355 360 365
Arg Gly Ser Leu Arg Val Gln Cys Thr Lys Asn Cys Gly Ser Arg Val
370 375 380
Ile Leu Arg His Leu Arg Gly Glu Leu Arg Arg Lys Asp Cys Tyr Trp
385 390 395 400
Asp Arg Ile Ile Glu Asn Phe Phe Glu Ile Ala Ala Ala Lys Leu Gln
405 410 415
Asn Lys Asn Leu Asn Asn Asn Glu Ser Val Arg Arg Gly His Ser Gly
420 425 430
His Ile Ile Gln Tyr Asp Lys Phe Arg Gly Leu Ser Gly Arg His Phe

435					440					445					
Gly	Ser	Tyr	Ile	Ile	Val	Arg	Gly	Ser	Met	Asp	Gly	Arg	Ile	Ile	Asp
450						455					460				
Ala	Arg	Ser	Lys	Ile	Thr	His	Ser	Val	Met	Ile	Asn	Met	Thr	His	Tyr
465					470					475					480
Ser	Asp	Ala	Gly	Leu	Ser	Phe	Trp	Lys	Gly	Phe	Asp	Arg	Gln	Phe	Ile
				485					490					495	
Asp	Ile	Arg	Asp	Arg	Pro	Lys	Asn	Ala	His	Glu	Cys	Lys	Ala	Thr	Ile
			500					505					510		
Asn	Val	Glu	Glu	Cys	Gly	Glu	Met	Ala	Ala	Ile	Val	Asn	Gln	Leu	Leu
		515					520					525			
Phe	Pro	Met	Trp	Lys	Ile	Thr	Cys	Thr	Gln	Cys	Gly	Glu	Leu	Leu	Glu
	530					535					540				
Met	Leu	Ser	Gln	Glu	Glu	Glu	Leu	Glu	Ser	Phe	Arg	Arg	Lys	Arg	Ser
545					550					555					560
Gln	Leu	Ala	Ser	Lys	Leu	Ser	Ser	Leu	His	Ile	Lys	Phe	Pro	Tyr	Val
				565					570					575	
Asp	His	Phe	Leu	Asn	Arg	Tyr	Glu	Asn	Ser	Leu	Asn	Arg	Met	Asn	Thr
			580					585					590		
Asn	Phe	Asp	Ala	His	Lys	Gln	Ile	Ala	Gln	Ile	Ile	Gly	Ser	Arg	Lys
		595					600					605			
Glu	Ile	Pro	Phe	Ser	Asn	Leu	Glu	His	Leu	Asn	Glu	Leu	Leu	Ile	Lys
	610					615					620				
Ser	Asp	Lys	Leu	Val	Ser	Glu	Asp	Phe	Tyr	Glu	Met	Ser	Gln	Cys	Leu
625					630					635					640
Leu	Glu	Leu	Thr	Arg	Trp	His	Lys	Asn	Arg	Ser	Asp	Ser	Phe	Lys	Lys
				645					650					655	
Gly	Glu	Ile	His	His	Phe	Arg	Asn	Lys	Met	Ser	Gly	Lys	Ala	Gln	Phe
			660					665					670		
Asn	Phe	Ala	Leu	Met	Cys	Asp	Asn	Gln	Leu	Asp	Lys	Asn	Gly	Asn	Phe
		675					680					685			
Val	Trp	Gly	Glu	Arg	Gly	Tyr	His	Ala	Lys	Arg	Phe	Phe	Leu	Asn	Phe
	690					695					700				
Phe	Glu	Lys	Val	Asp	Ser	Thr	Asp	Gly	Tyr	Lys	Lys	His	Ile	Met	Arg
705					710					715					720
Val	Asn	Pro	Asn	Gly	Thr	Arg	Gln	Thr	Ala	Ile	Gly	Lys	Leu	Ile	Leu
				725					730					735	
Ser	Thr	Asp	Pro	Ser	Thr	Leu	Arg	Gln	Gln	Met	Lys	Gly	Ser	Pro	Ile
			740					745					750		
Thr	Arg	Val	Pro	Val	Gly	Lys	Tyr	Cys	Thr	Ser	Lys	Arg	Asp	Gly	Cys
		755					760					765			
Tyr	Val	Tyr	Pro	Ala	Cys	Cys	Val	Thr	Met	Glu	Asp	Gly	Thr	Pro	Leu
	770					775					780				

Phe Ser Asp Ile Lys Met Pro Thr Lys Asn His Leu Val Ile Gly Asn
785 790 795 800
Ser Gly Asp Pro Lys Tyr Val Asp Val Pro Ser Ser Ser Ser Asp Met
805 810 815
Ile Val Ala Lys Glu Gly Tyr Cys Tyr Leu Asn Ile Phe Leu Ala Met
820 825 830
Leu Leu Asn Val Asn Glu Ser Glu Ser Lys Ser Phe Thr Lys Lys Val
835 840 845
Arg Asp Ile Ile Val Pro Arg Leu Gly Gln Trp Pro Ser Leu Ile Asp
850 855 860
Val Ala Thr Glu Cys Tyr Phe Leu Ser Ala Phe His Pro Glu Thr Lys
865 870 875 880
Asn Ala Glu Leu Pro Arg Ile Leu Val Asp His Thr Ser Lys Cys Met
885 890 895
His Val Ile Asp Ser Tyr Gly Ser Leu Asp Thr Gln Phe His Val Leu
900 905 910
Lys Ala Asn Thr Val Ser Gln Leu Ile Lys Phe Ala Asp Asn Asp Leu
915 920 925
Asp Ser Glu Leu Lys His Tyr Leu Val Gly Gly Asp Leu His Ser Lys
930 935 940
Gln Ala Pro Gln Cys Ser Ile Lys Leu Leu Cys Lys Cys Ile Tyr Arg
945 950 955 960
Pro Lys Leu Met Arg Gln Cys Ile Glu Glu Glu Pro Phe Leu Leu Ile
965 970 975
Leu Ala Cys Ile Ser Pro Gly Val Leu Leu Ala Leu Tyr Asn Ser Gln
980 985 990
His Leu Glu Leu Ala Leu Lys Tyr Trp Met Ser Lys Gln Gln Ser Val
995 1000 1005
Ala Ala Leu Phe Ala Met Ile His Gly Leu Ala Ala Lys Val Thr Val
1010 1015 1020
Ala Gln Thr Leu Asn Glu Gln Arg Leu Ile Leu Glu Arg Gly Ala Arg
1025 1030 1035 1040
Asn Leu Ile Ser Val Met Glu Thr Ile His Met Thr Ser His Ser Tyr
1045 1050 1055
Gln Pro Ala Leu Leu Gln Leu Gln Val Met Ala Asn Arg Arg Asp Met
1060 1065 1070
Asn Ser Thr Leu Asp Leu Ala Gly Phe Ser Ile Leu Gln Ser Glu Asp
1075 1080 1085
Ser Met Tyr Trp Met Glu Lys Ser Tyr Leu Met Glu Leu Glu Asp Ser
1090 1095 1100
Trp Asn Asp Leu Lys Trp Leu Glu Lys Leu Gln Glu Met Trp Arg Leu

1105	1110	1115	1120
Ser Lys Tyr Ser Ile	Ser Gly Ile	Ser Gln Leu Ser Met Lys	Gly Ala
	1125	1130	1135
Thr Asp Leu Gly Gly Arg Tyr Ser Val	Ser Ala Lys Gln Phe Ile Thr		
	1140	1145	1150
Ser Val Met Lys Pro Val Lys Lys Ser Cys Val Lys Ala Arg Asp Thr			
	1155	1160	1165
Cys Lys Glu Val Ile Ile Asn Thr Thr Ser Trp Thr Phe Arg Ala Thr			
	1170	1175	1180
Phe Ser Leu Cys Arg Trp Cys Leu Pro Asp Cys Leu Lys Phe Ile Asn			
	1185	1190	1195
Met Leu Ile Val Ile Ser Leu Ile Leu Ser Ile Trp His Ser Ala Asn			
	1205	1210	1215
Ser Ile Ser Phe Asp Tyr Ala Gln Met Lys Arg Glu Lys Gln Val Asn			
	1220	1225	1230
Ile Glu Lys Val Leu Met Asn Asn Leu Val Ala Leu His Lys Glu Gln			
	1235	1240	1245
Ile Lys Ile Asn Pro Asp Leu Thr Lys Glu Glu Phe Lys Glu Tyr Ile			
	1250	1255	1260
Ala Arg Ser Arg Pro Glu Leu Ile Ala Leu Val Asn Lys Glu Leu Gln			
	1265	1270	1275
Glu Glu Val Asp His Gln Ala Lys Arg Lys Gly Glu Gln Asn Leu Glu			
	1285	1290	1295
Lys Ile Ile Ala Phe Val Ala Leu Val Met Met Ile Phe Asp Ser Glu			
	1300	1305	1310
Lys Ser Asp Cys Val Tyr Lys Thr Leu Asn Lys Leu Arg Asn Leu Val			
	1315	1320	1325
Ala Thr Cys Asp Glu Pro Val Ala His Gln Ser Leu Asp Asp Ile Gln			
	1330	1335	1340
Asp Ile Leu Thr Asp Lys Glu Thr Thr Ile Asp Phe Asp Leu Asp Cys			
	1345	1350	1355
Glu Gly Ser Lys Val Thr Glu Phe Lys Glu Met Asn Phe Ala Ala Trp			
	1365	1370	1375
Trp Glu Lys Gln Leu Gln Cys Asp Arg Val Val Pro His Tyr Arg Thr			
	1380	1385	1390
Thr Gly Lys Phe Ile Glu Phe Thr Arg Glu Ser Cys Val Ser Val Ser			
	1395	1400	1405
Asn Thr Ile Ser His Ala Pro Glu Lys Glu Trp Ile Val Arg Gly Gly			
	1410	1415	1420
Val Gly Ser Gly Lys Ser Thr Gly Leu Pro Phe Ala Leu Ser Ser Lys			
	1425	1430	1435
			1440

Gly Ala Val Leu Met Leu Glu Pro Thr Arg Pro Leu Ala Glu Asn Val
 1445 1450 1455
 Ser Arg Gln Leu Arg Gln His Pro Phe Tyr Ala Asn Pro Thr Leu Arg
 1460 1465 1470
 Met Arg Gly Met Ser Ser Phe Gly Ser Ser Asn Ile Cys Ile Met Thr
 1475 1480 1485
 Ser Gly Phe Ala Phe Asn Tyr Phe Ala Asn Asn Pro Leu Lys Leu Ser
 1490 1495 1500
 Asp Phe Glu Phe Val Ile Ile Asp Glu Cys His Val Leu Asp Ser Asn
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 Ala Met Ala Phe Val Cys Leu Leu Lys Glu His Asn Tyr Asp Gly Lys
 1525 1530 1535
 Leu Leu Lys Val Ser Ala Thr Pro Gln Gly Arg Glu Cys Glu Phe His
 1540 1545 1550
 Thr Gln His Pro Val Ser Ile His Ile Glu Glu Gln Leu Ser Phe Gln
 1555 1560 1565
 Ala Phe Cys Glu Ala Gln Gly Thr Gly Ser Ala Arg Asp Val Ile Asn
 1570 1575 1580
 Lys Gly Asp Asn Ile Leu Val Tyr Val Ala Ser Tyr Asn Glu Val Asp
 1585 1590 1595 1600
 Gln Leu Ser Lys Met Leu Gly Asp Lys Gly Tyr Leu Val Thr Lys Val
 1605 1610 1615
 Asp Gly Arg Thr Met Lys Ile Gly Ser Thr Asp Ile Val Thr Lys Gly
 1620 1625 1630
 Ser Ser Gln Lys Lys His Phe Ile Val Ala Thr Asn Ile Ile Glu Asn
 1635 1640 1645
 Gly Val Thr Leu Asp Val Asp Val Val Val Asp Phe Gly Leu Lys Val
 1650 1655 1660
 Thr Ala Glu Ile Asp Tyr Asp Asn Arg Cys Val Asn Tyr Thr Lys Thr
 1665 1670 1675 1680
 Ser Ile Ser Tyr Gly Glu Arg Ile Gln Arg Leu Gly Arg Val Gly Arg
 1685 1690 1695
 His Lys Lys Gly His Ala Met Arg Ile Gly Thr Thr Ile Lys Gly Leu
 1700 1705 1710
 Ile Glu Ile Pro Ser Leu Val Ala Thr Gln Ala Ala Phe Gln Cys Phe
 1715 1720 1725
 Thr Tyr Gly Leu Pro Val Met Thr Gln Gly Val Ser Val Asn Ser Leu
 1730 1735 1740
 Ser Asn Cys Thr Val Arg Gln Ala Arg Val Met Ser Arg Phe Glu Leu
 1745 1750 1755 1760
 Pro Pro Tyr Phe Met Ala Ser Leu Val Tyr His Asp Gly Ser Met His

1765					1770					1775					
Pro	Glu	Ile	His	Lys	His	Leu	Ile	Pro	Tyr	Lys	Leu	Asp	Glu	Ser	Glu
			1780					1785					1790		
Ile	Gln	Leu	Ser	Ala	Met	Ala	Phe	Asn	Phe	Thr	Val	Thr	Ser	Ile	Trp
		1795					1800					1805			
Leu	Asp	Cys	Lys	Phe	Tyr	Asp	Ser	Ile	Gly	Ile	His	Leu	Asp	Leu	Pro
	1810					1815					1820				
Arg	Glu	Ala	Lys	Ile	Pro	Phe	His	Cys	Arg	Glu	Phe	Pro	Asp	Met	Lys
1825					1830					1835					1840
Tyr	Arg	His	Leu	Trp	Glu	Asp	Ile	Leu	Lys	Ile	Lys	Ser	Ile	Asn	Cys
			1845						1850					1855	
Phe	Gly	Arg	Met	Ser	Val	Val	Ser	Ala	Thr	Lys	Val	Ala	Tyr	Thr	Leu
			1860					1865					1870		
Lys	Thr	Asp	Ile	His	Ser	Ile	Gly	Lys	Thr	Leu	Gly	Tyr	Ile	Asp	Ala
		1875					1880					1885			
Leu	Leu	Gln	Glu	Glu	Tyr	Arg	Lys	Gln	His	His	Phe	Lys	Ala	Met	Thr
	1890					1895					1900				
Ser	Asn	Ala	Cys	Ser	Gly	Asn	Thr	Phe	Ser	Met	Leu	Ser	Ile	Ala	Asn
1905						1910					1915				1920
Ala	Ile	Arg	Asn	His	Tyr	Ala	Lys	Asp	Tyr	Thr	Ala	Gly	Asn	Ile	Gln
			1925						1930					1935	
Lys	Leu	Gln	Ala	Ala	Lys	Asn	Gln	Ile	Leu	Glu	Phe	Val	Asn	Leu	Asn
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Leu	Asp	Pro	Ser	Ala	Lys	Cys	Gly	Phe	Gln	Glu	Phe	Gly	Ala	Leu	Glu
		1955					1960					1965			
Leu	Val	Thr	His	Gln	Ser	Arg	Gln	Glu	Ile	Ser	Lys	Phe	Leu	Asn	Leu
	1970					1975					1980				
Arg	Gly	Lys	Trp	Asn	Lys	Ser	Leu	Ile	Thr	Arg	Asp	Ile	Leu	Val	Leu
1985					1990					1995					2000
Leu	Gly	Val	Thr	Ile	Gly	Gly	Phe	Trp	Met	Ile	Trp	Asp	Lys	Phe	Lys
			2005						2010					2015	
Ser	Asn	Ile	Glu	Glu	Val	His	His	Glu	Gly	Lys	Arg	Lys	Thr	Gln	Lys
			2020					2025					2030		
Leu	Lys	Phe	Arg	Asp	Ala	Arg	Asp	Lys	Lys	Met	Gly	Arg	Glu	Val	Tyr
		2035					2040					2045			
Gly	Asp	Asp	Gly	Thr	Ile	Glu	His	Tyr	Phe	Gly	Ser	Ala	Tyr	Val	Lys
	2050					2055					2060				
Arg	Gly	Ala	Val	Lys	Gly	Gln	Lys	Arg	Gly	Met	Gly	Glu	Lys	Ser	Arg
1065					2070					2075					2080
Arg	Phe	Val	Ser	Met	Tyr	Gly	Val	Asn	Leu	Glu	Asp	Phe	Ala	Phe	Ile
			2085						2090					2095	
Arg	Tyr	Ile	Asp	Pro	Ile	Thr	Gly	Ala	Thr	Arg	Asp	Glu	Ser	Pro	Leu

2100					2105					2110					
Thr	Asp	Val	Glu	Leu	Val	Gln	Ala	His	Phe	Gly	Glu	Ile	Arg	Asp	Lys
		2115					2120					2125			
Met	Leu	Asp	Glu	Gly	Leu	Ile	Asp	Arg	Gln	His	Ile	Leu	Asn	Lys	Pro
	2130					2135					2140				
Gly	Leu	Thr	Ala	Tyr	Leu	Val	Lys	Asp	Gly	Val	Lys	Ser	Ile	Met	Lys
2145					2150					2155					2160
Val	Asp	Leu	Gln	Pro	His	Asn	Pro	Leu	Leu	Ile	Cys	Lys	Asn	Lys	Ala
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Thr	Ile	Ala	Gly	Phe	Pro	Glu	Lys	Glu	Phe	Val	Leu	Arg	Gln	Thr	Asp
		2180						2185					2190		
Lys	Ala	Tyr	Glu	Val	Ser	Arg	Glu	Glu	Leu	Pro	Glu	Arg	Asn	Glu	Asp
	2195						2200					2205			
Val	Ser	Phe	Glu	Gly	Ala	Ser	Ser	Val	Lys	Gly	Leu	Arg	Asp	Tyr	Asn
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Gly	Val	Ala	Ser	Ala	Ile	Cys	Gln	Leu	Thr	Asn	Asn	Ser	Asn	Gly	Arg
2225				2230						2235					2240
Ser	Thr	Thr	Thr	Tyr	Gly	Val	Gly	Phe	Gly	Ser	Tyr	Ile	Ile	Val	Asn
			2245						2250					2255	
Arg	His	Leu	Phe	Lys	Glu	Asn	Asn	Gly	Asn	Leu	Leu	Ile	Lys	Ser	Thr
		2260						2265					2270		
His	Gly	Asn	Phe	Asn	Ile	Arg	Asn	Ser	Lys	Gln	Ile	Lys	Val	Val	Gly
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Asn Gln Leu Glu Gly Asn Leu Lys Ala Val Ala Thr Ile Pro Asn Asn
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Phe Val Thr Lys His Ile Val Lys Gly Arg Cys Lys Leu Phe Glu Leu
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Met Leu Arg Asn Leu His Thr Glu Ile Ile Tyr Thr Pro Ile Ala Thr
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Pro Asp Gly Thr Val Val Lys Lys Phe Arg Gly Asn Asn Ser Gly Gln
Page 22

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